

SEQUENCE LISTING

<110> Jones, Kenneth A.

Walker, Mary W.

Tamm, Joseph

Branchek, Theresa A.

Gerald, Christophe P.G.

<120> Chimeric G-Proteins And Uses Thereof

<130> 59896

<140>

<141>

<160> 45

<170> PatentIn Ver. 2.1

<210> 1

<211> 355

<212> PRT

<213> C. elegans

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Met Ala Cys Cys Leu Ser Glu Glu Ala Arg Glu Gln Lys Arg Ile Asn
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Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Glu Glu
50 55 60

Asp Lys Arg Ala His Ile Arg Leu Val Tyr Gln Asn Val Phe Met Ala
65 70 75 80

Ile Gln Ser Met Ile Arg Ala Met Asp Thr Leu Asp Ile Lys Phe Gly
85 90 95

Asn Glu Ser Glu Glu Leu Gln Glu Lys Ala Ala Val Val Arg Glu Val
100 105 110

Asp Phe Glu Ser Val Thr Ser Phe Glu Glu Pro Tyr Val Ser Tyr Ile
115 120 125

Lys Glu Leu Trp Glu Asp Ser Gly Ile Gln Glu Cys Tyr Asp Arg Arg
130 135 140

Arg Glu Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Ser Asp Leu
145 150 155 160

Arg Arg Leu Ala Val Pro Asp Tyr Leu Pro Thr Glu Gln Asp Ile Leu
165 170 175

Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu
180 185 190

Glu Gln Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu
195 200 205

Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe
210 215 220

Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Cys Asp Asn
225 230 235 240

Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr
245 250 255

Tyr Pro Trp Phe Thr Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys
260 265 270

Asp Leu Leu Glu Glu Lys Ile Leu Tyr Ser His Leu Ala Asp Tyr Phe
275 280 285

Pro Glu Tyr Asp Gly Pro Pro Arg Asp Pro Ile Ala Ala Arg Glu Phe
290 295 300

Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ala Asp Lys Ile Ile
305 310 315 320

Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val
325 330 335

Phe Ala Ala Val Lys Asp Thr Ile Leu Gln His Asn Leu Lys Tyr Ile
340 345 350

Gly Leu Cys
355

<210> 2

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<213> C. elegans

<400> 2

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Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Glu Glu
50 55 60

Asp Lys Arg Ala His Ile Arg Leu Val Tyr Gln Asn Val Phe Met Ala
65 70 75 80

Ile Gln Ser Met Ile Arg Ala Met Asp Thr Leu Asp Ile Lys Phe Gly
85 90 95

Asn Glu Ser Glu Glu Leu Gln Glu Lys Ala Ala Val Val Arg Glu Val
100 105 110

Asp Phe Glu Ser Val Thr Ser Phe Glu Glu Pro Tyr Val Ser Tyr Ile
115 120 125

Lys Glu Leu Trp Glu Asp Ser Gly Ile Gln Glu Cys Tyr Asp Arg Arg
130 135 140

Arg Glu Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Ser Asp Leu
145 150 155 160

Arg Arg Leu Ala Val Pro Asp Tyr Leu Pro Thr Glu Gln Asp Ile Leu
165 170 175

Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu
180 185 190

Glu Gln Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu
195 200 205

Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe
210 215 220

Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Cys Asp Asn

225 230 235 240
 Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr
 245 250 255
 Tyr Pro Trp Phe Thr Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys
 260 265 270
 Asp Leu Leu Glu Glu Lys Ile Leu Tyr Ser His Leu Ala Asp Tyr Phe
 275 280 285
 Pro Glu Tyr Asp Gly Pro Pro Arg Asp Pro Ile Ala Ala Arg Glu Phe
 290 295 300
 Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ala Asp Lys Ile Ile
 305 310 315 320
 Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val
 325 330 335
 Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Asn Asn Leu Lys Tyr Ile
 340 345 350
 Gly Leu Cys
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<210> 3
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 <213> C. elegans

<400> 3
 Met Ala Cys Cys Leu Ser Glu Glu Ala Arg Glu Gln Lys Arg Ile Asn
 1 5 10 15
 Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
 20 25 30
 Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45
 Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Glu Glu
 50 55 60
 Asp Lys Arg Ala His Ile Arg Leu Val Tyr Gln Asn Val Phe Met Ala
 65 70 75 80

Ile	Gln	Ser	Met	Ile	Arg	Ala	Met	Asp	Thr	Leu	Asp	Ile	Lys	Phe	Gly			
				85					90					95				
Asn	Glu	Ser	Glu	Glu	Leu	Gln	Glu	Lys	Ala	Ala	Val	Val	Arg	Glu	Val			
			100					105					110					
Asp	Phe	Glu	Ser	Val	Thr	Ser	Phe	Glu	Glu	Pro	Tyr	Val	Ser	Tyr	Ile			
			115				120					125						
Lys	Glu	Leu	Trp	Glu	Asp	Ser	Gly	Ile	Gln	Glu	Cys	Tyr	Asp	Arg	Arg			
			130				135				140							
Arg	Glu	Tyr	Gln	Leu	Thr	Asp	Ser	Ala	Lys	Tyr	Tyr	Leu	Ser	Asp	Leu			
					150					155					160			
Arg	Arg	Leu	Ala	Val	Pro	Asp	Tyr	Leu	Pro	Thr	Glu	Gln	Asp	Ile	Leu			
				165					170					175				
Arg	Val	Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Leu			
				180				185					190					
Glu	Gln	Ile	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu			
			195				200					205						
Arg	Arg	Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe			
			210			215					220							
Leu	Val	Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Cys	Asp	Asn			
				225		230				235					240			
Glu	Asn	Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr			
				245					250					255				
Tyr	Pro	Trp	Phe	Thr	Asn	Ser	Ser	Val	Ile	Leu	Phe	Leu	Asn	Lys	Lys			
				260				265					270					
Asp	Leu	Leu	Glu	Glu	Lys	Ile	Leu	Tyr	Ser	His	Leu	Ala	Asp	Tyr	Phe			
				275			280				285							
Pro	Glu	Tyr	Asp	Gly	Pro	Pro	Arg	Asp	Pro	Ile	Ala	Ala	Arg	Glu	Phe			
				290			295				300							
Ile	Leu	Lys	Met	Phe	Val	Asp	Leu	Asn	Pro	Asp	Ala	Asp	Lys	Ile	Ile			
				305		310				315				320				
Tyr	Ser	His	Phe	Thr	Cys	Ala	Thr	Asp	Thr	Glu	Asn	Ile	Arg	Phe	Val			
				325				330					335					

Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Met His Leu Arg Gln Tyr
 340 345 350

Glu Leu Leu
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<210> 4
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 <212> PRT
 <213> C. elegans

<400> 4
 Met Ala Cys Cys Leu Ser Glu Glu Ala Arg Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Glu Glu
 50 55 60

Asp Lys Arg Ala His Ile Arg Leu Val Tyr Gln Asn Val Phe Met Ala
 65 70 75 80

Ile Gln Ser Met Ile Arg Ala Met Asp Thr Leu Asp Ile Lys Phe Gly
 85 90 95

Asn Glu Ser Glu Glu Leu Gln Glu Lys Ala Ala Val Val Arg Glu Val
 100 105 110

Asp Phe Glu Ser Val Thr Ser Phe Glu Glu Pro Tyr Val Ser Tyr Ile
 115 120 125

Lys Glu Leu Trp Glu Asp Ser Gly Ile Gln Glu Cys Tyr Asp Arg Arg
 130 135 140

Arg Glu Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Ser Asp Leu
 145 150 155 160

Arg Arg Leu Ala Val Pro Asp Tyr Leu Pro Thr Glu Gln Asp Ile Leu
 165 170 175

Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu
 180 185 190

Glu Gln Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu
 195 200 205

Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe
 210 215 220

Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Cys Asp Asn
 225 230 235 240

Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr
 245 250 255

Tyr Pro Trp Phe Thr Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys
 260 265 270

Asp Leu Leu Glu Glu Lys Ile Leu Tyr Ser His Leu Ala Asp Tyr Phe
 275 280 285

Pro Glu Tyr Asp Gly Pro Pro Arg Asp Pro Ile Ala Ala Arg Glu Phe
 290 295 300

Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ala Asp Lys Ile Ile
 305 310 315 320

Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Arg Val
 325 330 335

Phe Asn Asp Cys Arg Asp Ile Ile Gln Arg Met His Leu Arg Gln Tyr
 340 345 350

Glu Leu Leu
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<210> 5
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 <213> C. elegans

<400> 5
 Met Ala Cys Cys Leu Ser Glu Glu Ala Arg Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr

45

Pro Glu Tyr Asp Gly Pro Pro Arg Asp Pro Ile Ala Ala Arg Glu Phe

290 295 300

Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ala Asp Lys Ile Ile
 305 310 315 320

Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val
 325 330 335

Phe Ala Ala Val Lys Asp Thr Ile Leu Gln His Asn Leu Lys Glu Cys
 340 345 350

Gly Leu Tyr
 355

<210> 6
 <211> 359
 <212> PRT
 <213> Homo sapiens

<400> 6

Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
 1 5 10 15

Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp
 20 25 30

Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
 35 40 45

Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
 50 55 60

Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
 65 70 75 80

Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
 85 90 95

Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
 100 105 110

Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr
 115 120 125

Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys
 130 135 140

Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr
 145 150 155 160

Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln
 165 170 175

Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr
 180 185 190

Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
 195 200 205

Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
 210 215 220

Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
 225 230 235 240

Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
 245 250 255

Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
 260 265 270

Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
 275 280 285

Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
 290 295 300

Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
 305 310 315 320

Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
 325 330 335

Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
 340 345 350

Leu Lys Glu Tyr Asn Ala Val
 355

<210> 7
 <211> 359
 <212> PRT
 <213> Canis familiaris

<400> 7

Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
1 5 10 15

Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp
20 25 30

Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
35 40 45

Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
50 55 60

Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
65 70 75 80

Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
85 90 95

Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
100 105 110

Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr
115 120 125

Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys
130 135 140

Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr
145 150 155 160

Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln
165 170 175

Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr
180 185 190

Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
195 200 205

Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
210 215 220

Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
225 230 235 240

Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
245 250 255

Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
260 265 270

Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
275 280 285

Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
290 295 300

Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
305 310 315 320

Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
325 330 335

Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
340 345 350

Leu Lys Glu Tyr Asn Leu Val
355

<210> 8

<211> 359

<212> PRT

<213> Mus musculus

<400> 8

Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
1 5 10 15

Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg His Val Arg Arg Asp
20 25 30

Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
35 40 45

Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
50 55 60

Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
65 70 75 80

Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
85 90 95

Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu

100	105	110
Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr		
115	120	125
Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys		
130	135	140
Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr		
145	150	155
Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ser Tyr Leu Pro Thr Gln		
165	170	175
Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr		
180	185	190
Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly		
195	200	205
Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr		
210	215	220
Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val		
225	230	235
Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg		
245	250	255
Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe		
260	265	270
Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu		
275	280	285
Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala		
290	295	300
Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser		
305	310	315
Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn		
325	330	335
Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn		
340	345	350
Leu Lys Glu Tyr Asn Leu Val		

<210> 9
 <211> 359
 <212> PRT
 <213> *Xenopus laevis*

<400> 9

Met	Thr	Leu	Glu	Ser	Ile	Met	Ala	Cys	Cys	Leu	Ser	Glu	Glu	Ala	Glu
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Glu	Ala	Arg	Arg	Ile	Asn	Asp	Glu	Ile	Glu	Arg	Gln	Leu	Arg	Arg	Asp
			20					25					30		
Lys	Arg	Asp	Ala	Arg	Arg	Glu	Leu	Lys	Leu	Leu	Leu	Leu	Gly	Thr	Gly
		35					40						45		
Glu	Ser	Gly	Lys	Ser	Thr	Phe	Ile	Lys	Gln	Met	Arg	Ile	Ile	His	Gly
	50					55				60					
Ser	Gly	Tyr	Ser	Asp	Glu	Asp	Lys	Arg	Gly	Phe	Thr	Lys	Leu	Val	Tyr
65					70					75					80
Gln	Asn	Ile	Phe	Ser	Ala	Met	Gln	Ala	Met	Ile	Arg	Ala	Met	Glu	Thr
				85					90					95	
Leu	Lys	Ile	Pro	Tyr	Lys	Tyr	Glu	His	Asn	Lys	Gly	His	Ala	Leu	Leu
			100					105					110		
Val	Arg	Glu	Val	Asp	Val	Glu	Lys	Val	Ala	Ser	Phe	Glu	Asn	Pro	Tyr
		115					120					125			
Val	Asp	Ala	Ile	Lys	Tyr	Leu	Trp	Asn	Asp	Pro	Gly	Ile	Gln	Glu	Cys
	130					135					140				
Tyr	Asp	Arg	Arg	Arg	Glu	Tyr	Gln	Leu	Ser	Asp	Ser	Thr	Lys	Tyr	Tyr
145					150					155					160
Leu	Asn	Asp	Leu	Asp	Arg	Ile	Ala	Thr	His	Gly	Tyr	Leu	Pro	Thr	Gln
			165						170					175	
Gln	Asp	Val	Leu	Arg	Val	Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr
		180						185						190	
Pro	Phe	Asp	Leu	Gln	Ser	Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly
		195					200					205			

Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
210 215 220

Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
225 230 235 240

Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
245 250 255

Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
260 265 270

Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
275 280 285

Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
290 295 300

Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
305 310 315 320

Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
325 330 335

Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
340 345 350

Leu Lys Glu Tyr Asn Leu Val
355

<210> 10

<211> 353

<212> PRT

<213> Patinopecten yessoensis

<400> 10

Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
1 5 10 15

Cys Glu Ile Glu Lys Glu Leu Arg Lys Ala Lys Arg Asp Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Thr Gly Tyr Ser Glu Glu
50 55 60

Asp Lys Arg Gly Phe Ile Lys Ile Val Tyr Gln Asn Ile Phe Met Ala
 65 70 75 80
 Met His Ser Met Ile Arg Ala Met Asp Thr Ile Lys Ile Ser Phe Glu
 85 90 95
 Val Ala Asp Asn Glu Glu Asn Ala Ile Met Ile Arg Gln Val Asp Tyr
 100 105 110
 Glu Thr Val Thr Thr Leu Asp Ser Gln Ser Val Glu Ala Ile Leu Ser
 115 120 125
 Leu Trp Ala Asp Ala Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140
 Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Asp Ala Val Asp Arg
 145 150 155 160
 Ile Ala Glu Pro Asn Tyr Leu Pro Thr Leu Gln Asp Ile Leu Arg Val
 165 170 175
 Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Asp Ser
 180 185 190
 Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205
 Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
 210 215 220
 Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Asn
 225 230 235 240
 Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
 245 250 255
 Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270
 Leu Glu Glu Lys Ile Met His Ser His Leu Val Asp Tyr Phe Pro Glu
 275 280 285
 Phe Asp Gly Gln Lys Lys Asp Ala Gln Gly Ala Arg Glu Phe Ile Leu
 290 295 300
 Arg Met Phe Val Asp Leu Asn Pro Asp Pro Asp Lys Ile Ile Tyr Ser
 305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
 340 345 350

Val

<210> 11

<211> 353

<212> PRT

<213> *Lymnaea stagnalis*

<400> 11

Met Ala Cys Cys Ile Pro Asp Glu Leu Lys Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Arg Gln Leu Lys Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ala Gly Tyr Ser Asp Glu
 50 55 60

Asp Lys Arg Ser His Ile Lys Ile Val Tyr Gln Asn Ile Phe Met Ala
 65 70 75 80

Met His Ala Met Ile Arg Ala Met Asp Thr Leu Asn Ile Gln Tyr Ile
 85 90 95

Asn Pro Ala Asn Arg Glu Asn Gly Asn Met Ile Arg Gln Ile Asp Tyr
 100 105 110

Glu Thr Val Thr Thr Phe Asp Lys Pro Cys Val Asp Ala Ile Ile Ser
 115 120 125

Leu Trp Asn Asp Asp Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Asp Ser Val Glu Arg
 145 150 155 160

Ile Ser Gln Gln Asp Tyr Leu Pro Thr Leu Gln Asp Ile Leu Arg Val

165

170

175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Asp Ser
180 185 190

Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
210 215 220

Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Asn
225 230 235 240

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
260 265 270

Leu Glu Glu Lys Ile Met His Ser His Leu Val Asp Tyr Phe Pro Glu
275 280 285

Phe Asp Gly Pro Lys Lys Glu Ala Ser Thr Ala Arg Glu Phe Ile Leu
290 295 300

Lys Met Phe Val Glu Leu Asn Pro Asp Pro Asp Lys Ile Ile Tyr Ser
305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
340 345 350

Val

<210> 12

<211> 353

<212> PRT

<213> Drosophila melanogaster

<400> 12

Met Glu Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
 50 55 60

Asp Lys Arg Gly Tyr Ile Lys Leu Val Phe Gln Asn Ile Phe Met Ala
 65 70 75 80

Met Gln Ser Met Ile Lys Ala Met Asp Met Leu Lys Ile Ser Tyr Gly
 85 90 95

Gln Gly Glu His Ser Glu Leu Ala Asp Leu Val Met Ser Ile Asp Tyr
 100 105 110

Glu Thr Val Thr Thr Phe Glu Asp Pro Tyr Leu Asn Ala Ile Lys Thr
 115 120 125

Leu Trp Asp Asp Ala Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Ser Asp Leu Ala Arg
 145 150 155 160

Ile Glu Gln Ala Asp Tyr Leu Pro Thr Glu Gln Asp Ile Leu Arg Ala
 165 170 175

Arg Val Pro Thr Thr Gly Ile Leu Glu Tyr Pro Phe Asp Leu Asp Gly
 180 185 190

Ile Val Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Ile Phe Leu Val
 210 215 220

Ala Leu Ser Glu Tyr Asp Gln Ile Leu Phe Glu Ser Asp Asn Glu Asn
 225 230 235 240

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
 245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
275 280 285

Tyr Asp Gly Pro Lys Gln Asp His Ala Ala Ala Lys Gln Phe Val Leu
290 295 300

Lys Lys Tyr Leu Ala Cys Asn Pro Asp Pro Glu Arg Gln Cys Tyr Ser
305 310 315 320

His Phe Thr Thr Ala Thr Asp Thr Glu Asn Ile Lys Leu Val Phe Cys
325 330 335

Ala Val Lys Asp Thr Ile Met Gln Asn Ala Leu Lys Glu Phe Asn Leu
340 345 350

Gly

<210> 13

<211> 353

<212> PRT

<213> Drosophila melanogaster

<400> 13

Met Glu Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
50 55 60

Asp Lys Arg Gly Tyr Ile Lys Leu Val Phe Gln Asn Ile Phe Met Ala
65 70 75 80

Met Gln Ser Met Ile Lys Ala Met Asp Met Leu Lys Ile Ser Tyr Gly
85 90 95

Gln Gly Glu His Ser Glu Leu Ala Asp Leu Val Met Ser Ile Asp Tyr
100 105 110

Glu Thr Val Thr Thr Phe Glu Asp Pro Tyr Leu Asn Ala Ile Lys Thr
115 120 125

Leu Trp Asp Asp Ala Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Lys Asp Leu Asp Arg
145 150 155 160

Val Ala Gln Pro Ala Tyr Leu Pro Thr Glu Gln Asp Ile Leu Arg Val
165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Glu Glu
180 185 190

Ile Arg Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Ile Phe Leu Val
210 215 220

Ala Leu Ser Glu Tyr Asp Gln Ile Leu Phe Glu Ser Asp Asn Glu Asn
225 230 235 240

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
275 280 285

Tyr Asp Gly Pro Gln Arg Asp Ala Ile Thr Ala Arg Glu Phe Ile Leu
290 295 300

Arg Met Phe Val Asp Leu Asn Pro Asp Ser Glu Lys Ile Ile Tyr Ser
305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Ser Asn Leu Lys Glu Tyr Asn Leu
340 345 350

Val

<210> 14

<211> 353
 <212> PRT
 <213> Homarus americanus

<400> 14

Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Arg Gln Leu Arg Lys Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ala Gly Tyr Ser Asp Glu
 50 55 60

Asp Lys Arg Gly Phe Ile Lys Leu Val Phe Gln Asn Ile Phe Met Ala
 65 70 75 80

Met Gln Ser Met Ile Arg Ala Met Asp Leu Leu Gln Ile Ser Tyr Gly
 85 90 95

Asp Ser Ala Asn Ile Glu His Ala Asp Leu Val Arg Ser Val Asp Tyr
 100 105 110

Glu Ser Val Thr Thr Phe Glu Glu Pro Tyr Val Thr Ala Met Asn Ser
 115 120 125

Leu Trp Gln Asp Thr Gly Ile Gln His Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Thr Asp Leu Asp Arg
 145 150 155 160

Ile Ala Ala Lys Asp Tyr Val Ser Thr Leu Gln Asp Ile Leu Arg Val
 165 170 175

Arg Ala Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Glu Glu
 180 185 190

Ile Arg Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Ile Phe Leu Val
 210 215 220

Ala Leu Ser Glu Tyr Asp Gln Ile Leu Phe Glu Ser Asp Asn Glu Asn

225 230 235 240
 Arg Met Glu Glu Ser Lys Ala Leu Phe Lys Thr Ile Ile Thr Tyr Pro
 245 250 255
 Trp Phe Gln His Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270
 Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
 275 280 285
 Tyr Asp Gly Pro Arg Lys Asp Ala Ile Ala Ala Arg Glu Phe Ile Leu
 290 295 300
 Arg Met Phe Val Glu Leu Asn Pro Asp Pro Glu Lys Ile Ile Tyr Ser
 305 310 315 320
 His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335
 Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
 340 345 350
 Val

<210> 15
 <211> 353
 <212> PRT
 <213> Limulus polyphemus

<400> 15
 Met Ala Cys Cys Leu Ser Glu Glu Gly Lys Glu Gln Lys Arg Ile Asn
 1 5 10 15
 Gln Glu Ile Glu Arg Gln Leu Arg Lys Asp Lys Arg Asp Ala Arg Arg
 20 25 30
 Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45
 Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Asp Asp
 50 55 60
 Asp Lys Lys Ser Tyr Ile Lys Leu Val Tyr Gln Asn Ile Ile Met Ala
 65 70 75 80

Met Gln Ser Met Asn Lys Ala Met Glu Met Leu Lys Ile Ser Tyr Lys
 85 90 95
 Asp Arg Asn Asn Ile Glu Asn Ala Glu Leu Val Leu Ser Val Asp Tyr
 100 105 110
 Glu Thr Val Thr Thr Phe Asp Ser Pro Tyr Val Glu Ala Ile Lys Ser
 115 120 125
 Leu Trp Val Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140
 Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Asn Asp Ile Asp Arg
 145 150 155 160
 Ile Ala Val Pro Asn Tyr Leu Pro Thr Gln Gln Asp Ile Leu Arg Val
 165 170 175
 Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Ile Leu Asp Ser
 180 185 190
 Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205
 Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Ile Phe Leu Val
 210 215 220
 Ala Leu Ser Glu Tyr Asp Gln Ile Leu Phe Glu Ser Asp Asn Glu Asn
 225 230 235 240
 Arg Met Glu Glu Ser Lys Ala Leu Phe Lys Thr Ile Ile Thr Tyr Pro
 245 250 255
 Trp Phe Leu Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270
 Leu Glu Glu Lys Ile Met Phe Ser His Leu Val Asp Tyr Phe Pro Glu
 275 280 285
 Tyr Asp Gly Pro Lys Lys Asp Ala Val Gln Gly Arg Glu Phe Ile Leu
 290 295 300
 Lys Met Phe Val Asp Leu Asn Pro Asp Ser Glu Lys Ile Ile Tyr Ser
 305 310 315 320
 His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
 340 345 350

Val

<210> 16

<211> 354

<212> PRT

<213> Loligo forbesi

<400> 16

Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Glu Glu
 50 55 60

Asp Arg Lys Gly Phe Glu Lys Ile Val Tyr Gln Asn Ile Phe Ser Ala
 65 70 75 80

Ile Gln Thr Leu Ile Ala Ala Met Glu Thr Leu Ser Leu Glu Tyr Lys
 85 90 95

Asp Pro Ser Asn Asn Glu His Ala Glu Phe Leu Asn Ser Ile Asp Ala
 100 105 110

Asp Ser Ala Asp Ile Phe Glu Asp Gly His Val Thr Ala Ile Lys Gly
 115 120 125

Cys Trp Thr Asp Pro Gly Met Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Asp Asp Val Glu Arg
 145 150 155 160

Ile His Glu Pro Gly Tyr Ile Pro Thr Leu Gln Asp Ile Leu Arg Val
 165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Tyr Ser
 180 185 190

Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
 210 215 220

Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Glu
 225 230 235 240

Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr
 245 250 255

Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp
 260 265 270

Leu Leu Glu Glu Lys Ile Met Thr Ser His Leu Ala Asp Tyr Phe Pro
 275 280 285

Asp Tyr Asp Gly Pro Lys Cys Asp Tyr Glu Ala Ala Arg Glu Phe Met
 290 295 300

Met Asp Ser Tyr Met Asp Leu Asn Glu Asp Lys Glu Lys Met Leu Tyr
 305 310 315 320

Tyr His Tyr Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe
 325 330 335

Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn
 340 345 350

Leu Val

<210> 17

<211> 355

<212> PRT

<213> Caenorhabditis elegans

<400> 17

Met Ala Cys Cys Leu Ser Glu Glu Ala Arg Glu Gln Lys Arg Ile Asn
 1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Gln Arg Asp Lys Arg Asn Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr

35

40

45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Gln Gly Tyr Ser Glu Glu
50 55 60

Asp Lys Arg Ala His Ile Arg Leu Val Tyr Gln Asn Val Phe Met Ala
65 70 75 80

Ile Gln Ser Met Ile Arg Ala Met Asp Thr Leu Asp Ile Lys Phe Gly
85 90 95

Asn Glu Ser Glu Glu Leu Gln Glu Lys Ala Ala Val Val Arg Glu Val
100 105 110

Asp Phe Glu Ser Val Thr Ser Phe Glu Glu Pro Tyr Val Ser Tyr Ile
115 120 125

Lys Glu Leu Trp Glu Asp Ser Gly Ile Gln Glu Cys Tyr Asp Arg Arg
130 135 140

Arg Glu Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Ser Asp Leu
145 150 155 160

Arg Arg Leu Ala Val Pro Asp Tyr Leu Pro Thr Glu Gln Asp Ile Leu
165 170 175

Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu
180 185 190

Glu Gln Ile Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu
195 200 205

Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe
210 215 220

Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Cys Asp Asn
225 230 235 240

Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr
245 250 255

Tyr Pro Trp Phe Thr Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys
260 265 270

Asp Leu Leu Glu Glu Lys Ile Leu Tyr Ser His Leu Ala Asp Tyr Phe
275 280 285

Pro Glu Tyr Asp Gly Pro Pro Arg Asp Pro Ile Ala Ala Arg Glu Phe

290 295 300

Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ala Asp Lys Ile Ile
 305 310 315 320

Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val
 325 330 335

Phe Ala Ala Val Lys Asp Thr Ile Leu Gln His Asn Leu Lys Glu Tyr
 340 345 350

Asn Leu Val
 355

<210> 18
 <211> 355
 <212> PRT
 <213> Geodia cydonium

<400> 18

Met Ser Cys Leu Leu Ser Glu Glu Glu Arg Leu Gln Lys Arg Ile Asn
 1 5 10 15

Thr Arg Ile Asn Arg Glu Leu Gln Arg Asp His Lys Asp Ala Lys Lys
 20 25 30

Glu Ile Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Lys Gly Tyr Ser Lys Gln
 50 55 60

Asp Cys Leu Glu Tyr Lys Asn Leu Val Phe Arg Asn Ile Leu Met Ser
 65 70 75 80

Met His Ser Met Leu Gln Ala Thr Ala Glu Leu Lys Ile Ala Tyr Ile
 85 90 95

Asp Pro Asp Ala Gln Arg His Val Gln Leu Leu Met Ala Leu Arg Pro
 100 105 110

Glu Thr Ala Gln Ser Leu Gly Gly Glu Thr Cys Glu Ala Ile Arg Lys
 115 120 125

Leu Trp Gln Asp Ala Gly Val Gln Glu Cys Tyr Gln Arg Arg Asn Glu
 130 135 140

Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asp Asp Leu Pro Arg
 145 150 155 160

Ile Ser Ser Asn Asp Tyr Val Pro Thr Thr Gln Asp Val Leu Arg Val
 165 170 175

Arg Val Pro Thr Thr Gly Ile Asn Glu Tyr Pro Phe Thr Ile Asn Lys
 180 185 190

Ile Ile Phe Lys Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205

Lys Trp Ile His Cys Phe Asp His Val Thr Ser Val Met Phe Leu Val
 210 215 220

Ala Ile Ser Glu Tyr Asp Gln Ile Leu Val Glu Ala Asp Ser Arg Val
 225 230 235 240

Asn Arg Met Val Glu Ser Leu His Leu Phe Asn Thr Ile Ile Ser Tyr
 245 250 255

Pro Trp Phe Asn Lys Ser Ser Ile Ile Leu Phe Leu Asn Lys Lys Asp
 260 265 270

Leu Leu Glu Glu Lys Val Met His Ser His Leu Ile Asp Tyr Phe Glu
 275 280 285

Glu Tyr Asp Gly Pro Lys Cys Asp His Val Ser Ala Arg Glu Ser Ile
 290 295 300

Ala Lys Met Phe Ile Ser Ile Asn Asp Met Arg Ser Ala Asp Ile Tyr
 305 310 315 320

Pro His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Lys Phe Val Phe
 325 330 335

Asp Val Val Lys Asn His Ile Leu Gln Gln His Ile Thr Glu Val Val
 340 345 350

Pro Gly Leu
 355

<210> 19

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 19

gaatatgatg gaccccagag agatg

25

<210> 20

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 20

gatcctcgag ttagcacagt ccgatgtact tcaggttcaa ctggaggatg gt

52

<210> 21

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 21

gatcctcgag ttagtacagt ccgcattcct tcaggttcaa ctggaggatg gt

52

<210> 22

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 22

gatcctcgag ttagtaaagc ccacattcct tcaggttcaa ctggaggatg gt

52

<210> 23

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 23

gatcctcgag ttagagcagc tcgtattgct tcagggtcaa ctggaggatg gt 52

<210> 24

<211> 58

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 24

ggaaaaaagc ggccgcttaa aacagtccgc agtccttcag gttcaactgg aggatggt 58

<210> 25

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 25

ggggtaccgc cgccatggcc tgctgtttat cc 32

<210> 26

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 26

gctctagatt acaccaagtt gtactccttc agatt 35

<210> 27

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 27

ctctccgatc tccgacggct g

21

<210> 28

<211> 64

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 28

ttctacagca taatctgaag tatatcggtt tgtgtaatac tagagggcc gtttaaacc 60
gctg 64

<210> 29

<211> 64

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 29

cagcgggtt aaacgggcc tctagattaa cacaaaccga tatacttcag attatgctgt 60
agaa 64

<210> 30

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 30

cagcataatc tgaaggagtg tggattgtac taatctagag ggcccg

46

<210> 31

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 31

cgggccctct agattagtag aatccacact ccttcagatt atgctg

46

<210> 32

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 32

ggaaaaaagc ggccgcttag agcagctcgt attgcctcag gtgcatctgg aggatgggtg 60
ccttgacgg 69

<210> 33

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 33

gctctagatt agagcagctc gtattgcctc aggtgcatct gtagaattgt gtctttgacg 60
gcg 63

<210> 34

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 34

gctctagatt aacatagccc tatgtatatt agattattct gtagaattgt gtctttgacg 60
gcg 63

<210> 35
<211> 98
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 35
gctctagatt agagcagctc gtattgcctc aggtgcatac gttgaataat gtcacgacag 60
tcattaaanaa cagccgaat gttttccgta tcagtcgc 98

<210> 36
<211> 6
<212> PRT
<213> vertebrate

<400> 36
Met Thr Leu Glu Ser Ile
1 5

<210> 37
<211> 21
<212> PRT
<213> invertebrate

<400> 37
Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln His Asn Leu Lys
1 5 10 15

Glu Tyr Asn Leu Val
20

<210> 38
<211> 21
<212> PRT
<213> vertebrate

<400> 38
Phe Val Phe Asp Ala Val Thr Asp Val Ile Ile Gln Asn Asn Leu Lys
1 5 10 15

Tyr Ile Gly Leu Cys
20

<210> 39
<211> 21
<212> PRT
<213> vertebrate

<400> 39
Arg Val Phe Asn Asp Cys Arg Asp Ile Ile Gln Arg Met His Leu Arg
1 5 10 15

Gln Tyr Glu Leu Leu
20

<210> 40
<211> 21
<212> PRT
<213> vertebrate

<400> 40
Phe Val Phe Asp Ala Val Thr Asp Val Ile Ile Lys Asn Asn Leu Lys
1 5 10 15

Glu Cys Gly Leu Tyr
20

<210> 41
<211> 353
<212> PRT
<213> Drosophila melanogaster

<400> 41
Met Glu Cys Cys Leu Ser Glu Glu Ala Lys Glu Gln Lys Arg Ile Asn
1 5 10 15

Gln Glu Ile Glu Lys Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
50 55 60

Asp Lys Arg Gly Tyr Ile Lys Leu Val Phe Gln Asn Ile Phe Met Ala
65 70 75 80

Met Gln Ser Met Ile Lys Ala Met Asp Met Leu Lys Ile Ser Tyr Gly
 85 90 95

Gln Gly Glu His Ser Glu Leu Ala Asp Leu Val Met Ser Ile Asp Tyr
 100 105 110

Glu Thr Val Thr Thr Phe Glu Asp Pro Tyr Leu Asn Ala Ile Lys Thr
 115 120 125

Leu Trp Asp Asp Ala Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Thr Asp Ser Ala Lys Tyr Tyr Leu Lys Asp Leu Asp Arg
 145 150 155 160

Val Ala Gln Pro Ala Tyr Leu Pro Thr Glu Gln Asp Ile Leu Arg Val
 165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Glu Glu
 180 185 190

Ile Arg Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
 195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Ile Phe Leu Val
 210 215 220

Ala Leu Ser Glu Tyr Asp Gln Ile Leu Phe Glu Ser Asp Asn Glu Asn
 225 230 235 240

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
 245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
 275 280 285

Tyr Asp Gly Pro Gln Arg Asp Ala Ile Thr Ala Arg Glu Phe Ile Leu
 290 295 300

Arg Met Phe Val Asp Leu Asn Pro Asp Ser Glu Lys Ile Ile Tyr Ser
 305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Ser Asn Leu Lys Tyr Ile Gly Leu
340 345 350

Cys

<210> 42
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 42
cggggtaccc cggttagcat ggagtgtgt ttatcg 36

<210> 43
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 43
ccggaattcc ggtagacca aattatattc cttaaggttc 40

<210> 44
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 44
gagcatcgat tacgagaccg ttacc 25

<210> 45
<211> 53
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 45

cggaattctt agcacagtcc gatgtactta aggttcgatt gcagaattgt gtc

53